SMC&PA Submission 230
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To the Education and Innovation Committee
Re: Assessment Methods for Senior Maths, Chemistry and Physics

I am a current teacher of Senior Physics and have taught Senior Mathematics for many years, although I am not currently teaching it. My daughter finished senior in 2010, doing Maths B, Maths C, Physics, Chemistry and Biology. So I make comments below both as a teacher and a parent.

Firstly I will address the terms of reference issue, **"The ability of assessment processes to support valid and reliable judgements of student outcomes"**. I make the following points:

- Ownership
  If an assessment item is to allow valid and reliable judgements it has to be the student's own work, obviously. This cannot be guaranteed in the case of assignments, Extended Experimental Investigations (EEIs) or Extended Research Tasks (ERTs) which are features of assessment in senior Mathematics, Physics and Chemistry.

  There is no way for a teacher to be sure the work presented in any of the above assessment items has been done by the student and not wholly or in large part by a parent, tutor or friend. As a teacher, what was to stop me doing my daughter's assignments/ERTs/EEIs or at least guiding her? Nothing! As it was, I did proof-read them.

  In Year 11 my daughter came home with the story that the tutor of one of her friends had got part of an ERT wrong. She and her friends found it amusing. The 'victim' of the tutor's error did not have to worry though; her friends corrected the error for her.

  Just this term, one of my students asked what the assessment would be. When I said it would be a supervised assessment (that is, a written supervised test), she said, "Good, you can't cheat."

  In Physics, half or more of all assessment can be made up by these types of pieces. What do you do about the student who performs well in EEIs etc but not so well in supervised tests? You cannot downgrade the EEI results, but if they are receiving outside help, this is obviously unfair. In the competitive environment of OPs and university entrance, this unfair advantage can have real impact.

- Criteria versus marks
  Having to use criteria as opposed to marks presents many problems. The criteria themselves are confusing and their application subjective and time consuming.

  Consider how the following can possibly be "valid and reliable":
  Each assessment item has a criteria sheet and when marked this criteria sheet will have results for the various parts of the assessment piece in the form of A's, B's, C's, ... The teacher then must make a judgement from these as to an overall A, B, C ... (usually for up to three sub-sections of the particular assessment piece). If the student is consistent, mostly B's say, then an overall B may be not too hard to judge. However, what of the student who has a mixture of B's and C's? The overall rating here is often hard to judge and subjective.
  Now, these overall ratings for each assessment piece are transferred to a student profile. So by the end of Year 12, each student has a profile which has A's, B's ... in each of three sections for each assessment item undertaken in the course. The teacher must then judge an overall A, B ... for each section. Exactly the same problems of judgement as for the single assessment piece arise here. From this then, the student is assigned an exit level of achievement of VHA, HA ...
  Finally, for the purposes of assigning the student an SAI (a number between 200 and 400, which is used in calculating a student's OP), the teacher must make judgements between students. Given two profiles of mixed B's and C's again, the teacher must decide that the profile of student X translates to an SAI of say 312 but the profile of student Y translates to an SAI of 317. (These differences in SAI's are crucial in the determination of the OP the student receives.)

  With marks, at least there is an objective total at the end. The student profile will still have three sections but each could have a percentage attached to it. This would make the determination of the exit level of achievement and the SAI's easier and much less subjective.

- School based assessment versus external exams
  The current OP system in my view is fatally flawed. I will not go into detail here as I do not think it is part of the

committee's terms of reference. However, if you as a committee member have a child at high school, I would urge you to make sure your school is using a program like "OP Analyser" to tweak the school's OP data before it is sent to the QSA.

I would support a system of 50% school based assessment and 50% external exams. The big disadvantage of fully external exams is the "one-off" nature of the exam. A good student has a bad day, gets a bad result. However with a 50/50 system, a student's results in each could be compared and allowance made for the 'bad-day' student. Analysis could be made of school ratings versus external exam ratings to see if there is a correlation between school results and external exam results. There may be consistency, that is, overall, students who get good marks in their school based assessment, get good marks in the external exam, medium marks get medium marks etc. There could also be the situation where students perform consistently better in the school based assessment than in the external exam (for example, if the school has an "every child wins a prize" philosophy). Another, much more unlikely scenario would be the reverse of the latter. In compensating for the 'bad day' student, the school results of a school where there was consistency would have more weight than in the case of inconsistency.

The QSA does a similar comparison at the moment between how students perform on the QCS test and how the school rates their overall achievement.

On the issue of **"student participation levels"**:

- Ours is a relatively small school, so numbers of students enrolling in Physics and Chemistry vary year to year and it is not possible to make any valid judgements as to overall trends in student participation. However I would add the observation that the number of Chemistry classes has dropped in the last couple of years from two to one in both Years 11 and 12. However this has also to do with more pressure being applied to students entering Year 11 to choose subjects wisely.
- One aspect that I feel will effect student participation in the long term is the time consumed by these type of assessments (assignments, EEIs and ERTs). We have students coming in at lunch times, after school and whole days on weekends to complete the assessment pieces.
- In the term where the assessment is undertaken, very little else is done. If there is an attempt to cover other work at the same time, both the students and teachers know it will not be assessed and the focus is squarely on the EEI or whatever. After one EEI assessment, my daughter observed, quite shocked, that she had taken one page of notes for the whole term. (Students can usually take a page of notes per lesson.)

On the issue of **"ensuring assessment processes are supported by teachers":**

- I have no empirical data to say what the level of support for the current assessment system is. I do know anecdotally however that it is not supported by the majority of staff at my school. Colleagues I talk to from other schools report similar levels of dissatisfaction.
- These types of assessment take inordinate amounts of staff time to set and mark.
- The amorphous nature of the criteria based assessment mean staff spend much more time marking even supervised tests than in a marks based system and contributes to rising levels of frustration.

Finally, I would like to add in reference to my daughter that this is not a case of sour grapes on my part: "My daughter didn't get the result I think she deserved, therefore the system is wrong." My daughter received an OP 1, but the system is still wrong.

Yours sincerely

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